R. Michael Turnipseed, Director

ALLEN BIAGGI. Administrator

(775) 687-4670
TDD 687-4678

Administration
Water Pollution Control
Facsimile 687-5856
Mining Regulations & Reclamation
Facsimile 684-5259

State of Nevada
KENNY C. GUINN
*Governor*

Waste Management
Corrective Actions
Federal Facilities

Air Quality
Water Quality Planning

Facsimile 687-6396

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

**DIVISION OF ENVIRONMENTAL PROTECTION**

333 W. Nye Lane, Room 138
Carson City, Nevada 89706

July 9, 2003

Mr. Dave McCarthy
Atlantic Richfield Company
307 E Park Ave.
Anaconda, Montana 59711

SUBJECT: **Draft Final Process Areas Work Plan**

Dear Mr. McCarthy:

The Nevada Division of Environmental Protection (NDEP) has received and evaluated the **Draft Final Process Areas Work Plan,** dated January 14, 2003, regarding the continued environmental investigation of the Yerington Mine, located in Lyon County near Yerington Nevada. This office provides the following comments from NDEP, EPA, BLM, U.S. Fish and Wildlife and other technical representatives of the Yerington Technical Work Group (YTWG).

NDEP, EPA, and BLM comments on all draft work plans have been submitted to Atlantic Richfield with the intent of providing guidance and direction in crafting work plans in accordance with CERCLA, the National Contingency Plan (NCP), State of Nevada statutes and regulations, and standard scientific and engineering principles and practices associated with implementing remedial investigations.

The document as submitted is inadequate and could not be approved in the final version without substantial improvement. NDEP, EPA, and BLM remain concerned that the **Draft Final Process Areas Work Plan** is inadequate and that implementation of this work plan will fail to completely characterize the nature and extent of contamination at the site and thus, not provide adequate information to determine remediation/reclamation and closure requirements for the process areas in both at timely and cost effective manner. To help clarify our concerns, specific inadequacies are discussed below in the attached comments.

Atlantic Richfield must provide justification for the sampling methods, locations and analytes at each potential source area included in the Process Areas. You must provide historical or scientific justification for the proposed characterization effort As well. If adequate historical information is not available or for

other reasons is not presented in the work plan, a more complete characterization is warranted and must be proposed.

This plan is deficient in rationale for the proposed field investigations, screening and sample collecting, including the QA/QC, sample collection and handling and decontamination sections. Without significant revision incorporating the regulatory agencies comments, the Final Work Plan will remain inadequate and will not be approved.

The following guidance documents are provided to assist you in developing a work plan that meets the requirements of the regulatory agencies

EPA Guidance:

U.S. Environmental Protection Agency, (2000). Guidance for Data Quality Objectives Process (QA/G-4) (EPA/600/R-96/055). Washington, DC: Office of Environmental Information.

U.S. Environmental Protection Agency, (2000). Guidance for Data Quality Assessment : Practical Methods for Data Analysis (QA/G-9) (EPA/600/R-96/084, QA00 Update).Washington, DC.

U.S. Environmental Protection Agency, (2001). EPA Requirements for Quality Assurance Project Plans (QA/R-5) (EPA/240/B-01/003). Washington, DC.

U.S. Environmental Protection Agency, (2002). Guidance on Systematic Planning for Environmental Data Collection Using Performance and Acceptance Criteria (QA/G-4A). Washington, DC.

**BLM Sample of Yerington Mine Process Areas Work Plan Outline, April 14, 2003**
(See attached).

**Comments to the Atlantic Richfield Company (ARCo) letter dated January 14, 2003, included at the beginning of the Draft Final Process Areas Work Plan**

On all future Reports with response to comments, please include the location or locations of all revisions to speed the review process. For example, if you have concurred with and included the requested revision in the report, please indicate pages, tables, figures where revisions have been added.

**Page 4: Precipitation Plant Section**. If Atlantic Richfield proposes to investigate the existence and locations of these transfer points as part of the investigation, why is it not listed in the work plan?

**Page 9 –** This revised work plan does not provide a comprehensive site investigation. For example, missing facilities that are now buried under waste piles or heap leach pads must be included in the investigation as these process areas may be contributing to groundwater contamination. It is the potentially responsible party's requirement, and not the regulating bodies to show that these facilities are not possible sources of contamination.

**Page 10 -** As part of any significant screening or field investigation at a mine site with known radioactive material in the area or surrounding area, a radionuclide screening / analysis is not only recommended, it is required. It is not the responsibility of the regulator to provide the responsible party with documentation. Since the purpose of these work plans are to gather extensive site information to characterize the site, the responsible party must discount the possibility of active radiation at the Site to ensure the public health and worker health at the Site now and during remediation. The issue should also be addressed in the health and safety plan to insure the safety of all workers. Please see Attachment.

**Page 10 -** "Given the anticipated future use of the site..." Since there has been no decision as to re-use, an industrial scenario may not be protective of human or ecological health. If this work plan is solely an

investigation, then data should be collected so that when the risk assessment is to be completed, data gaps do not exist. With this proposed work plan, substantial data gaps will still exist and will require more data to be collected before a risk assessment can be completed.

**Page 11 -** The work plan does not include data collection that will support the appropriate exposure pathways as depicted on Figure 3. Per the section concerning the exposure scenarios and the pathways, receptors, etc., the Response to Comments stated that these will be completed with the risk assessment. It will be impossible to complete a risk assessment if data gaps exist. It is Atlantic Richfield's responsibility to acquire information to evaluate human and ecological risk. This work plan does not adequately address some of the following exposure scenarios, including a residential scenario, trespassers, and workers, as well as ecological risk assessment requirements. The regulatory agencies are willing to meet with Atlantic Richfield's risk assessors to ensure that the data collected as part of these investigations will be sufficient to complete risk screening and a risk assessment, if necessary.

**Page 11 -** We appreciate Atlantic Richfield's planning for possible interim actions in the work plan. Additionally, the regulatory agencies support the use of employee interviews which can lead to very important historical information that has been lost or buried in mine records. Atlantic Richfield can provide the necessary information from either record review or employee interviews. Of course, confirmation should be attempted to ensure that the recounting from memory is done as well as possible.

**Page 12, Section 3.1:** NDEP stated that samples below the leaking sanitary sewers should be discrete samples and not composited. Your response was inadequate. You stated that work plan has been revised to describe how samples will be composited and still does not agree to use discrete samples below piping.

**Page 12, #6 -** We do not understand this response regarding piping. Also, documentation of the trench where wastes were discharged (the calcine trench) are not being investigated. Any trench or piping moving waste or process material from one area of the plant to another must be included in the process area work plan. Atlantic Richfield stated in previous responses that these trenches, etc. would be reviewed and discussed in the work plans for those areas of the Site, yet now, the discussions and investigations are non-existent. So where are these investigations going to be presented? Historical photographs of the Site (that were shown at several meetings) show different color fluids leaving the process plant area; if the trenches are not located, then soil/surface sampling should be done in this area of the Site to determine if contamination exists that could lead to human or animal/plant exposure.

**Page 13 -** Field screening without chemical analysis limits the data available for conducting a risk assessment. If quantitative data are not collected, a quantitative risk assessment cannot be completed and these data cannot be compared to a PRG or other screening criteria. The authors are employing best judgment for deciding what tests are needed in certain areas. It will be difficult to adequately evaluate the Site using this approach.

**Page 14 -** The GW / SW (where SW or process fluid are used interchangeably) is not being investigated in this work plan. Communication of the surface contamination with the shallow aquifer is not being studied in many parts of the process area. If site contamination is to occur, it is highly likely that it occurred in this area. The organic vapor measuring may be impacted by other variables such as heat, humidity, calibration, etc. None of that material was contained in the work plan. The comments' response shows some of the limitations of the PID. However, this is data collection, not screening, so there is a high possibly that some contamination will be missed in this type of screening activity.

**Page 15 -** The table helps substantially, and we appreciate this addition to the work plan. A line drawing should also be included for each building with adequate scale to depict sample locations.

**Work Plan Specific Comments:**

1. Section 1.0, page 1, first paragraph, second sentence: Although the plan states that site investigation activities will be conducted in accordance with the Closure Scope of Work (SOW), the investigation activities will be conducted in accordance with the Closure Scope of Work and consistent with the NCP and CERCLA.

2. Section 1.0, page 1, first paragraph, fifth sentence: "Generally, soils will be analyzed for whole rock analyses." Please clarify that soils will be generally analyzed for all warranted contaminants of concern; WR, ABA, VOC, PCB.

3. Section 1.0, page 1, first paragraph, last two sentences: The soils characterization program that Atlantic Richfield proposes in the current version of the plan is incomplete and will not provide adequate information to determine future investigation and closure requirements.

4. Section 1.0, page 1, second paragraph The plan proposes that potential risk to human health will be evaluated, but only for the beneficiation units containing materials or significant residues while other characterization efforts are for the selection of closure alternatives (remedial actions). The characterization objectives for all areas and units must be for the assessment of risk and providing data for the effective selection of remedial actions. However, the ability to achieve these objectives depends upon the accuracy and completeness of the characterization. The plan must be modified to accurately reflect the scope of this effort such as characterizing the nature and extent of possible contamination and as well as assessing the risk potential.

5. Section 1.4, page 4: The DQO process cited in the plan is inadequate to address the process areas. The "Guidance for the Data Quality Objectives Process" (EPA QA/G4, August 2000) should be used in this and other work plans to develop appropriate and relevant DQOs.

   This work plan cites the Quality Assurance Project Plan (QAPP) prepared by Brown and Caldwell, dated 2002. The work plan includes a subset of the data quality objectives (DQOs) process, a description of process areas, a work plan for field screening, laboratory analyses, field documentation, and site job safety analysis. It is recommended that the subject document be revised to include all DQO steps and provide additional information for the four steps that are discussed.

   The first four steps of the seven step DQO process are discussed in the WP. It is recommended that additional information be provided consistent with QA/G-4 guidance. For example, in Step 5, Develop a Decision Rule, the WP should specify the Action Level for each parameter and, depending on what action is needed based on the Action Level, determine a decision rule. Step 6 should establish the tolerable decision error limits and examine the consequences of making an incorrect decision. A rationale should be provided if the remaining three steps of the DQO process are not applicable.

   Step 1 of the DQO process should be revised to identify the
   planning team members, including the decision makers. Step 1 should also provide a summary of available resources and relevant deadlines.

   The work plan states in Step 2 of the DQO process that results of field investigations will be interpreted and compared to regulatory standards or guideline values. The work plan should include these regulatory standards or guideline values for comparison against the detection limits provided in Table 3, Analyses and Methods.

   The identified Step 3 of the DQO process is incomplete. The development of an accurate characterization strategy must be based upon all available information, such as past records and interviews of past employees. The draft plan is not based upon any such information. To

overcome the lack of institutional knowledge, the plan and the proposed sampling strategy must be comprehensive in its approach.

6. Section 2.0: This section is severely lacking in detailed information. Each of the components must be identified separately with detailed information such as dimensions and historical background information provided with figures. The work plan is incomplete without this information. The proposal to include this information in a subsequent report (Data Summary Report) is not acceptable (see page 19).

7. Section 3.0: This section is severely lacking in both information and rationale. For example, characterization of the Leach Vats and Underground Utilities (see Section 2.0) are not described in this section. How will samples be collected from below the vat structures that are 20 feet deep? How will the underground utilities and structures be located and characterized? This section must contain the appropriate guidelines for characterizing and sampling these and all other identified components.

   The proposed activities for sample collection are inadequate to characterize the process areas components. For example, there are surface and subsurface concrete structures identified in the work plan, yet no method is identified to characterize below these structures. Will the concrete be sampled? How and where will soil that is representative of background conditions be determined? Where is the sampling and characterization rationale for making this determination?

   This section of the work plan must include detailed information on the number of samples per building, structure, etc., and the specific sampling parameters that are to be analyzed. Only the general sampling procedures and screening methods are provided. Moreover, these sampling procedures and screening methods are inadequate.

   The Work Plan indicates that soil samples representative of background conditions will be collected. The number and location of background samples should be identified in the plan.

8. Section 3.1

   **Field Investigations; Page 19:** The proposed investigations are inadequate to fully characterize the area. For example, why haven't the sample locations been identified yet? Why will they be based on field observations and review of historical records, which has not been completed? Historical records should already have been reviewed and incorporated into the work plan.

   **first bullet:** "Final Selection of field screening locations based on field observations and a review of historical records." The specific field screening and sampling locations, sample analytes, sample depths etc. must be approved by regulatory agencies and the proposed methods must be included in this work plan for review and approval. This would apply to all proposed sampling except those locations such as areas of poor pipe integrity as determined by video surveillance of pipes in the field. These sampling locations must be determined in the field following approved surveillance methods.

   **Field Screening; Page 19:** Provide an individual plate for each process area building or potential source area with specific sample locations, depths and analytes. The scale of the plates provided (figures 2, 4,5,6) does not allow enough detail to effectively evaluate the proposed sampling strategy including sample locations and depths. For example, the proposed sample locations, and depths for the former acid plant (SS) are not clear.

   **Field Screening; Page 21; Last Paragraph:** If there is reason to believe that a contaminant of concern may have existed in specific locations, samples for these potential contaminants of

concern should be collected for the purpose of eliminating them from further consideration. All areas should be sampled for all potential contaminants of concern. This is the more defensible approach. As an example, how would your proposed screening determine if there is reason to sample for pesticides, herbicides etc.?

**Composite Samples; Page 22;** All VOC and SVOC samples should be discrete and not composited. Region 9 requires collection of samples for VOC analysis using a hermetically sealed sampling container, such as an EnCore sampler. Three discrete containers for each location are required. (Six discrete containers are required for samples designated for laboratory quality control.) Region 9 recommends a two day holding time unless the sample is preserved in methanol or with sodium bisulfate. (Note: The detection limits will be raised if methanol is used.) The holding time may beextended by freezing.

Are samples to be collected below concrete structures? If so, what sampling procedures will be utilized? If not, what is your justification? Composite samples for VOC analysis are inappropriate. All VOC soil analysis should be performed on discrete samples. In addition to ABA and WRA, samples must also be analyzed for PCB's and radionuclides where appropriate. Where impacts to soil exceed concentrations of concern, evaluation of potential impacts to groundwater are warranted and must be included. These evaluations can only be conducted following horizontal and vertical delineation of the detected contaminants.

**Field Screening:** The field screening method described in this work plan is inadequate and appears to be designed to fail (find no impacts). For example, where is the rationale for the proposed sample locations and numbers (generally one per component)? How can one sample adequately characterize a component? The proposed screening method for soil pH and volatile organic vapors is to be used to determine which samples will be submitted to a laboratory for ABA, WRA, or gas and diesel range volatile organics. How are pH and volatile organics related? If the soil pH is above 5.5 and there were no vapors present, then why are only up to half of the collected samples being submitted for ABA and WR analysis? Where is the rationale? To state that these "analyses will ensure representative characterization of soils for assessment of human health and ecological risk" is not rationale. See comment above.

The paste pH criteria of 5.5 is limiting for characterization sampling because higher pH environments can also be extremely hazardous as well and provide a more complex pathway. The samples must be collected based on historic location and processes and not be merely based on a pH of 5.5.

Why are subjective observations such as "olfactory" being proposed to establish sample locations? The establishment of sample locations must be supported with objective methods and rationale.

The proposed field investigation and screening of sewer and drain lines is incomplete because historical records have not yet been reviewed and the proposed screening criteria of a pH, volatile organic vapors and olfactory means is not supported by defensible rationale.

9. Section 3.2

It is recommended that limits or precision and accuracy be provided. It is also recommended that the WP specify the designation of samples for laboratory QC samples, e.g., matrix spike/matrix spike duplicate (MS/MSD) analysis.

It is recommended that a temperature blank be included in each cooler of site samples.

The information to be included on the chain-of-custody should also identify any preservative added and identify the sample(s) designated for laboratory QC.

The work plan does not specify preservation or holding time requirements. It is recommended that this information be provided.

10. **Comments on the Tables:**

**Table 1;** must be revised, and specific comments on a portion of the table are provided below as an example of how the entire table should be revised.

Process Area Components: Description, Status, and
Proposed Sampling Locations and Analyses; It is recommended that Table 1 include the total number of samples collected for each analysis.

**Table 3;** The metals method 6010A should be changed to the newer 6010B that is available on the methods part of the EPA web site.

**Truck shop -** considering the different compounds that are used in this type of shop, please include a minimum of one metals profile with the ABA / WRA. Additionally, more samples should be included to delineate contamination horizontally and vertically. This work plan should be updated with information from NDEP's recent drum removal. This text states that 170 drums have been present for at least 25 years with some corroded and /or leaking.

**Equipment Garage –** This area also had drums. As with the comment above, the status of the drums should be included. Are any leaking? The inventory does not state. Analysis of drum storage areas should be based on drum characterization information gathered by NDEP during the recent drum characterization and removal project.

**Truck Wash and Paint Shop -** Not enough sampling considering outdoor paint during the plant's lifetime contained high amounts of lead. A metals analysis is needed on at least one sample. Where there is oil staining anywhere on-site, it is necessary to eliminate the possibility of PCBs. Thus, for the rest of the table, areas with oil staining should include PCB analyses.

**Small Warehouse -** additional samples must be taken to delineate this area both vertically and horizontally. With 91 transformers, it is highly probably that most of the top soil in this area is contaminated. Is Atlantic Richfield willing to remove the top layers in this area without detailing the extent of contamination? Clarify whether this is a cement or dirt floor.

**Grease Shop -** even though it is empty, we would suggest a PCB sample.

**Vats -** It is very probable that there are cracks in the cement. How is Atlantic Richfield going to sample sub-slab? It appears that this is not going to be done, even though these are leaching areas where we assume acid and other corrosive material were used. These need to be sampled thoroughly, and not just 4 samples.

**Filling Stations -** Investigation of tank locations, contents and soil impacts should be included for filling stations. Tank fluids should be removed to eliminate immediate hazards. A work plan for tank removal and characterization should be provided to the regulatory agencies for review and approval.

**Sulfide Areas -** This area covers over 3200 sq. ft., and only 1 sample is proposed for every 1000 feet. This proposal is not sufficient. Also, metals analyses should be included.

**Drum Storage -** Analysis of drum storage areas should be based on drum characterization information gathered by NDEP during the recent drum characterization and removal project.

Accordingly, the regulatory agencies will not approve the final Process Areas Work Plan unless these comments have been incorporated. As agreed in our meeting on July 7, 2003, please provide your written response to these comments. This information must be received not later than August 7, 2003.

Should you have any questions or if I can be of any assistance, please do not hesitate to contact me at (775) 687-9376 or FAX (775) 687-6396. All future correspondence regarding this subject should be addressed to the undersigned.

Sincerely,

Arthur G. Gravenstein, P.E.
Staff Engineer
Remediation Branch
Bureau of Corrective Action

ec: Ms. Jennifer Carr, NDEP
Mr. Dave Emme, NDEP

Cc: Mr. Joe Sawyer, Project Manager, SRK Consulting, 102 Birch Drive, Yerington NV. 89403
Mr. Chuck Zimmerman, Senior Associate, Brown and Caldwell, 3488 Goni Road, Suite 142, Carson City, NV 89706
Mr. Chuck Pope, Deputy Assistant Field Manager, Bureau of Land Management, Carson City Field Office, 5665 Morgan Mill Road, Carson City, NV 89701
Ms. Molly Mayo, Senior Mediator, Meridian Institute, P.O. Box 1829 Dillon, CO 80435
Mr. Elwood Emm, Chairman, Yerington Paiute Tribe, 607 W. Bridge St., Yerington, NV 89447
Mr. Duane Masters Sr., Environmental Manager, Yerington Paiute Tribe, 607 W. Bridge St., Yerington, NV 89447
Mr. Robert Quintero, Chairman, Walker River Paiute Tribe, P.O. Box 220, Schurz, NV 89427
Mr. Tad Williams, Environmental Director, Walker River Paiute Tribe, P.O. Box 220, Schurz, NV 89427
Mr. Stanley Wiemeyer, U.S. Department of Interior, Fish and Wildlife Service, 1340 Financial Blvd, Suite 234, Reno, NV 89502-7147
Mr. John Krause, Environmental Coordinator, Bureau of Indian Affairs, Phoenix Area Office, P.O. Box 10, Phoenix, AZ 85001
Ms. Bonnie Arthur, Project Manager, U.S. Environmental Protection Agency, Region IX, 75 Hawthorne Street, San Francisco, CA 94105
Ms. Phyllis Hunewill, Commissioner, Lyon County, 31 South Main Street, Yerington, NV 89447
Mr.
Steve Snyder, County Manager, Lyon County, 31 South Main Street, Yerington, NV 89447
Mr. Dan Newell, Manager, City of Yerington, 102 South Main Street, Yerington, NV
Mr. Bob McQuivey, Habitat Bureau Chief, Nevada Division of Wildlife, 1100 Valley Road, Reno, NV 89520
Ms. Libby Levy, 75 Hawthorne Street, San Francisco, CA 94105
Ken Paulsen, Behre Dolbear & Company, Inc., PO Box 1930, Arvada CO 80001
Mr. Ken Spooner, Manger, Walker River Irrigation District, P.O. Box 820, Yerington, NV 89447